Dublin San Ramon Services District
Residential Meter Upgrade

Section A-1 Urban Water Conservation Grant Application Cover Sheet

1. Applicant (Organization or affiliation): Dublin San Ramon Services District

2. Project Title: Residential Meter Upgrade

3. Person authorized to sign and submit proposal:

Name, Title	Bert Michalczyk, General Manager
Mailing address	7051 Dublin Blvd., Dublin, CA 94568
Telephone	(925) 551-7230 x 106
Fax	(925) 829-1180
E-mail	michalcz@dsrsd.com

4. Contact person (if different):

Name, Title	Stan Kolodzie, Assistant Engineer
Mailing address	Same as above
Telephone	(925) 551-7230 x 107
Fax	(925) 829-1180
E-mail	kolodzie@dsrsd.com

5. Funds requested (dollar amount): $632,500

6. Applicant funds pledged (local cost share) (dollar amount): $442,750

7. Total project costs (dollar amount): $1,075,250

8. Estimated net water savings (acre-feet/year): 18.4 AF/yr

   Estimated total amount of water to be saved (acre-feet): 184.1 AF

   Over 10 years: 10 Years

   Benefit/cost ratio of project for applicant: 1.06

   Estimated $/acre-feet of water to be saved: $548/AF

9. Project life (month/year to month/year): 10/2003 to 12/2013

10. State Assembly District where the project is to be conducted: Assembly District 15

11. State Senate District where the project is to be conducted: Senate District 7

12. Congressional District(s) where the project is to be conducted: District 10

13. County where the project is to be conducted: Alameda County

14. Do the actions in this application involve physical changes in land use, or potential future changes in land use?

(a) Yes _____

(if yes, complete the land use check list at http://www.calfed.water.ca.gov/adobe_pdf/Questionnaires_EC_Permits_Land Use.pdf and submit it with the proposal

(b) No _____X_____

A-2 Application Signature Page

By signing below, the official declares the following:

- The truthfulness of all representations in the application; and
- The individual signing the form is authorized to submit the application on behalf of the applicant; and
- The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the application on behalf of the applicant; and
- The applicant will comply with all terms and conditions identified in this Application Package if selected for funding.

_____	Bert Michalczyk, Gen. Mgr.	_____
Signature	Name and Title	Date

Section A-3 Application Checklist

Complete this checklist to confirm all sections of this application package have been completed.

Part A: Project Description, Organizational, Financial and Legal Information

_____A-1 Urban Water Conservation Grant Application Cover Sheet
_____A-2 Application Signature Page
_____A-3 Application Checklist
_____A-4 Description of project
_____A-5 Maps
_____A-6 Statement of work, schedule
_____A-7 Monitoring and evaluation
_____A-8 Qualification of applicant and cooperators
_____A-9 Innovation
_____A-10 Agency authority
_____A-11 Operation and maintenance (O&M)

Part B: Engineering and Hydrologic Feasibility (construction projects only)

_____B-1 Certification statement
_____B-2 Project reports and previous studies
_____B-3 Preliminary project plans and specifications
_____B-4 Construction inspection plan

Part C: Plan for Environmental Documentation and Permitting

_____C-1 CEQA/NEPA
_____C-2 Permits, easements, licenses, acquisitions, and certifications
_____C-3 Local land use plans
_____C-4 Applicable legal requirements

Part D: Need for Project and Community Involvement

_____D-1 Need for project
_____D-2 Outreach, community involvement, support, opposition

Part E: Water Use Efficiency Improvements and Other Benefits

_____E-1 Water use efficiency improvements
_____E-2 Other project benefits

Part F: Economic Justification, Benefits to Costs Analysis

_____F-1 Net water savings
_____F-2 Project budget and budget justification
_____F-3 Economic efficiency

Appendix: Benefit/Cost Analysis Tables

_____Tables 1; 2; 3; 4a, 4b, 4c, 4d; and 5

Section A-4 Description of Project

Dublin San Ramon Services District is implementing a Residential Meter Upgrade Program to better meter the water sold to its residential customers. A grant from the DWR would permit the District to improve the program to include a water usage-monitoring tool for the District's customers to use in conservation efforts.

The District currently has 9,200 residential accounts in the service area. Of these, 3,841 accounts are serviced by water meters that are not only 10 years old or older; but are also meters with no electronic reading capability. Each billing cycle these meters must be visually inspected to handwrite the meter readings.

The District has an initiative underway to reduce Unaccounted Water to a goal of 4% of total purchases. In March 2001, the District replaced and tested 60 residential meters covering the spectrum of age and manufacturer. Testing of these meters confirmed that the older residential meters were a significant cause of Unaccounted Water. The older meters under-read by as much as 18% per year.

Analysis of the current population of meters indicates that the meters 10 years in service or longer is also the source of considerable delays in reading the meter routes because they have no electronic capability. All these older meters have to be read by eye, with the readings recorded by pen on paper. Newer meters have been fit with an electronic reading "Touch-Read" capacity at installation. The Touch Read values are electronically transferred to the District's billing computer. The values from the older, "non-electronic" meters are hand-keyed into the Versaterm recorder for the uplink. Thus the older meters are also the primary cause of reading errors, required re-reading and delays.

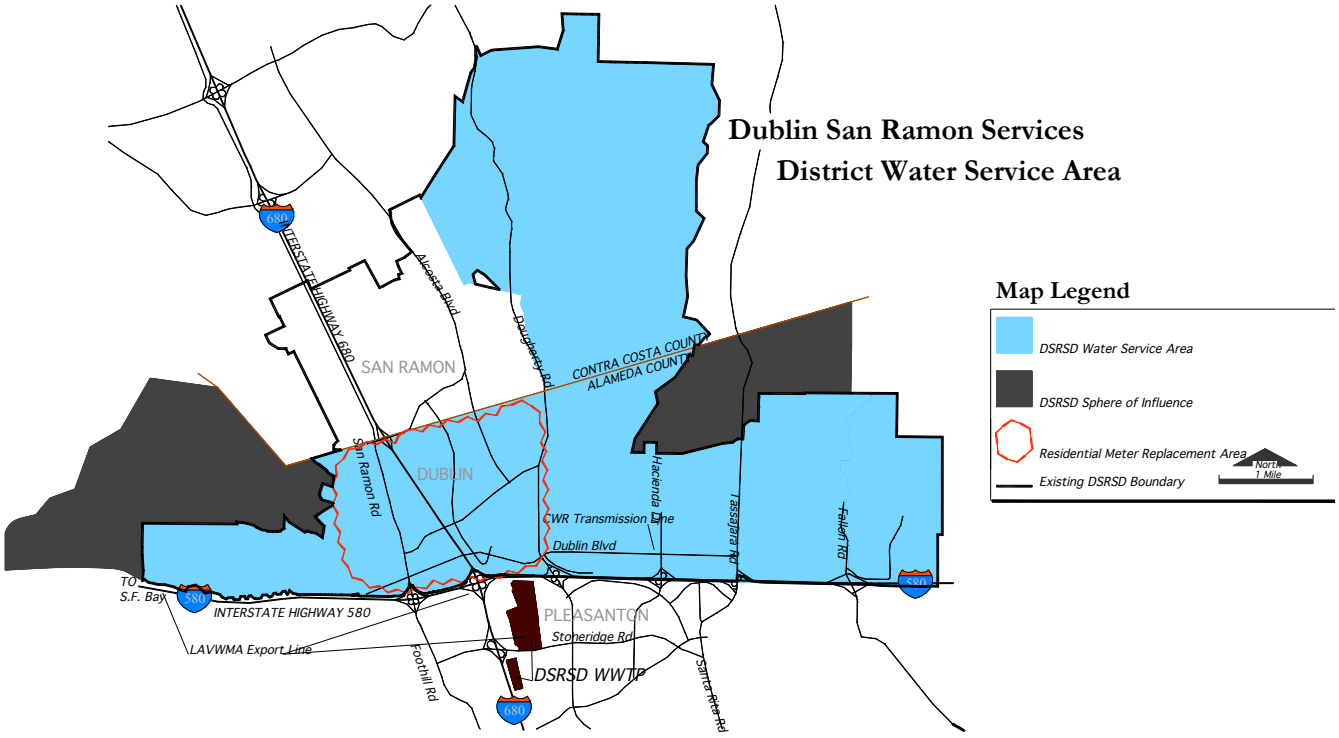
The District plans to address the issue of under-reading by replacing the current 10-year+ meters with new meters. This program would be a "bare-bones" meter replacement program that would recover only the under-recorded water at a cost of $365,000. The bare-bones program will move 60 million gallons per year from "Unaccounted" to "Accounted for" Water Sales.

Upgrading the program would add an integral Radio Read feature with a datalogging capability to each new meter. A 2003 Urban Water Conservation Grant of $632,500 would allow DSRSD to upgrade the new meters to a state of the art system including the datalogging feature. Based on the results of other agencies, the District estimates that the customers using the datalogger abilities of the Meter Interface Unit under consideration will conserve 7.5% of affected throughput, or 4.5 million gallons per year. During meter installation, those 10-year+ connections of the angle stops that are leaking will also be repaired to save an additional 1.5 million gallons per year.

The water saved thus totals 66 million gallons per year of water now unaccounted for in District billing; of this 6 million gallons of water per year saved from the overall demand on the states water resources by conservation in the District's service area.

The total cost of the requested grant is $632,500 with the Total Annual Costs equal to $~~85,957~~152,626. Total Net Annual Water Supply Benefit is $~~129,823~~161,649. The Benefit/Cost Ratio is ~~1.40~~1.06.

Section A-5 Maps



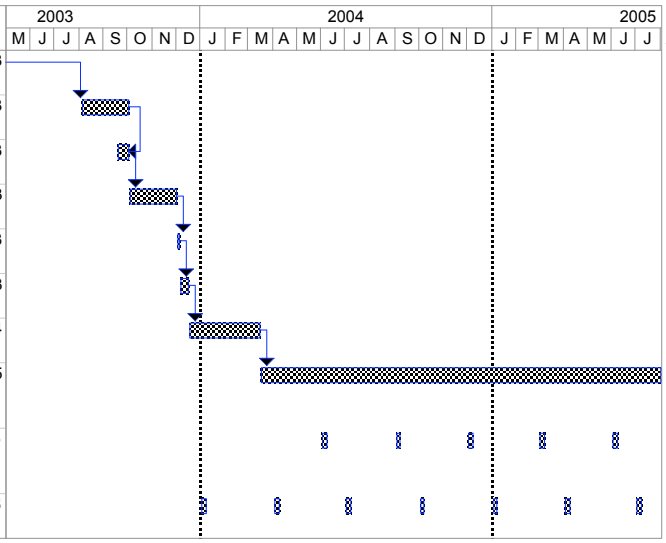
Section A-6 Statement of Work, Schedule

Project Plan and Task List for Residential Meter Upgrade Program

No.	Task	Start Date	End Date	Deliverable Item	Meter Only Costs	Meter With Upgrade Costs	Inseparable if Project only Partially Funded
1	Submit 2003 Urban Water Conservation Grant Application	12/03/02	12/03/02	Grant Application	$0	$0	X
2	DWR Review and Selection	12/04/02	02/15/03				
3	DWR Final Funding Decision Process	02/15/03	04/20/03				
4	DWR Funding Agreement Reviewed, Approved by Board and Signed	04/20/03	10/01/03	Signed Agreement	$0	$0	X
5	Preparation of Specifications	09/16/03	10/01/03	Specification Packet	$8,000	$15,000	X
6	Public Bid Process	10/01/03	11/30/03	Bids by Contractor Candidates	$0	$0	X
7	Contractor Selection	11/30/03	12/05/03	Responsible Low Bid Contractor	$0	$0	X
8	Contractor Mobilization	12/05/03	12/15/03		$2,000	$5,000	X
9	DSRSD Obtains FCC License for Radio Read System Transmitter	12/15/03	03/14/04	FCC License		$5,000	
10	Meter Replacement without Upgrade	12/15/03	03/14/04	3841 New Meters, Installed	$365,000		X
10	Meter Replacement with Upgrade	12/15/03	03/14/04	3841 New Meters, Installed with Radio Read System		$890,000	
11	Customer Usage of Datalogger Information	03/15/04	12/31/05	DSRSD provides record of Diurnal Usage to Customers as requested		$10,000	
12	DSRSD Analysis of Incremental Accounted Water - Quarterly	06/01/04	12/31/05	Quarterly Incremental Water Reports	$5,000	$5,000	X
13	Quarterly Project Reports to DWR on Increased Water Use Efficiency	01/01/04	12/31/05	Quarterly Program Reports	$5,000	$5,000	
				Total	$385,000	$935,000	
				Contingency @ 15%	$57,750	$140,250	
					$442,750	$1,075,250	

Residential Meter Upgrade Program Schedule

ID	Task Name	Start	Finish
2	DWR Review and Selection	12/4/02	2/15/03
3	DWR Funding Agreement Reviewed and Signed	8/2/03	10/1/03
4	Preparation of Specifications	9/16/03	10/1/03
5	Public Bid Process	10/1/03	11/30/03
6	Contractor Selection	11/30/03	12/5/03
7	Contractor Mobilization	12/5/03	12/15/03
8	Meter Replacement with Upgrade	12/15/03	3/14/04
9	Customer Usage of Datalogger Information	3/15/04	12/31/05
10	**DSRSD Analysis of Incremental Accounted Water**	**6/1/04**	**9/8/05**
17	**Quarterly Reports to DWR**	**1/1/04**	**10/8/05**



Quarterly Expenditure Projection

Quarterly Expenditure Projection for Residential Meter Upgrade Program

Quarter	Estimated Expenditures (Does not Include Contingencies)					
	Planning, Design, Engineering	Materials and Installation	Construction, Administration, Overhead	Project Legal/License Fees	Other	Total
1/1/2003 – 3/31/2003						$0
4/1/2003 – 6/30/2003						$0
7/1/2003 – 9/30/2003	$15,000					$15,000
10/1/2003 - 12/31/2003	$5,000	$100,000				$105,000
						$0
1/1/2004 – 3/31/2004		$790,000	$2,500	$5,000		$797,500
4/1/2004 – 6/30/2004			$2,500			$2,500
7/1/2004 – 9/30/2004			$2,500			$2,500
10/1/2004 - 12/31/2004			$2,500			$2,500
						$0
1/1/2005 – 3/31/2005			$2,500			$2,500
4/1/2005 – 6/30/2005			$2,500			$2,500
7/1/2005 – 9/30/2005			$2,500			$2,500
10/1/2005 - 12/31/2005			$2,500			$2,500

Totals	$20,000	$890,000	$20,000	$5,000	$0	$935,000

Section A-7 Monitoring and Evaluation

Monitoring of this project will have two parts to reflect the two different objectives of the program.

The first objective is a District goal to reduce unaccounted water. Evaluating this goal will require at least a year after the replacement program to quantify the incremental billing. To evaluate the effectiveness of the program in this regard, the water usage records of the 3,841 accounts over the previous 4 years will be compiled. The recorded billings of all 3,841 meters will be summed for each billing cycle in the 4 years. Then the six billing cycles of the previous years will be averaged to reduce the effect of anomalies and graphed on a chronological chart. For example the billing records of Jan-Feb for 2003, 2002, 2001 and 1999 will be averaged to yield an average pre-replacement value total for Jan-Feb. Similar averages will be made for the other 5 billing cycles.

The post replacement billing totals for the set of 3,841 meters will be recorded and graphed on the same graph as above. After one year, the incremental difference in the pre-replacement and post-replacement billings will be summed to yield the annual incremental billing. The financial value of this annual increment will be calculated using the District's water rate schedule.

For the important second objective of empowering the customers to monitor their own usage and conserve water, each request for the datalogger information will trigger the monitoring process. The customer request for information will flag the account data to be added to a database of accounts undergoing customer conservation activity. Each of these accounts will be monitored for one billing cycle after the request. The post-request water billing will be compared to the pre-request water billing to find the volume conserved between the two billings. A brief report of the effect of their own conservation efforts will be sent to each customer in the data base after the billing cycle following their request. These increments will be also summed for all the customers active in the monitoring program.

Twice a year, DSRSD will compile the number of customers requesting the monitoring data and the total volume of potable water saved by the customers. Important metrics for the success of the program will be the number of customers requesting the information and the total water conserved as a basis of the customer conservation in each 6-month period.

Section A-8 Qualifications of the Applicant and Cooperators

Dublin San Ramon Services District
Residential Meter Upgrade Project Manager

David K. Behrens, P.E.

PROFESSIONAL EXPERIENCE

Dublin San Ramon Services District **August 2001 to Present**
Dublin, California

PRINCIPAL ENGINEER: Responsibilities include overseeing the planning, administration, design, construction, implementation and monitoring of the District's $38M annual Capital Improvement Program. Typical projects are associated with water supply and wastewater collection improvements including treatment facilities, transmission and distribution pipelines, pump stations, and storage facilities.

Marin Municipal Water District **April 1993 to July 2001**
Corte Madera, California

PRINCIPAL ENGINEER: Responsibilities included overseeing the engineering design services, engineering operation and support services, and construction management services groups, and overseeing the planning, administration, implementation and monitoring of the District's $20M annual Capital Improvement Program, $77M (15-year) Fire Flow and Seismic Reliability system upgrades, and $38M (6-year) Measure W Bond Projects. Typical projects were associated with water supply improvements including treatment facilities, transmission and distribution pipelines, pump stations, storage facilities, roadway rehabilitation and site drainage facilities, building construction and maintenance, new development facilities.

Kleinfelder, Inc. **March 1991 to March 1993**
Walnut Creek, California

SENIOR PROGRAM MANAGER: Responsibilities included the overseeing the administration, implementation and monitoring of the budgeting, planning, design, contract administration and construction management for a variety of public and private works projects including civil design projects, soil and ground water remediation, wastewater and water resource projects.

DB Flett & Associates **December 1986 to March 1991**
Walnut Creek, California

FIRM ASSOCIATE: Performed planning, design, surveying and construction management for a variety of civil, sanitary and environmental projects including water and wastewater facilities, flood control facilities, street and roadway design, and residential and commercial developments.

Contra Costa Water District November 1981 to December 1986
Concord, California

SENIOR ENGINEER: Senior Engineer and Construction Manager for Contra Costa Water District in Concord, California. My responsibilities included managing a staff consisting of engineers, supervisors, construction inspectors, draftspersons, corrosion control technicians and clerical support. As supervisor of the Design and Construction Group, Corrosion Group, Record and Mapping Group and New Business Development Group my responsibilities included the planning, design, contract administration and construction management for the District's annual capital improvement program.

Clendennen & Associates September 1980 to November 1981
Auburn, California

ASSOCIATE ENGINEER: Performed the planning, design, contract administration and construction management for a variety of civil, sanitary and environmental projects including water and wastewater facilities, flood control facilities, street and roadway design, and residential and commercial developments.

San Jose Water Company April 1978 to September 1980
San Jose, California

ASSISTANT ENGINEER: Performed the planning, design, contract administration and construction management for a variety of water distribution facilities.

Education

San Jose State University: MASTER OF SCIENCE IN CIVIL ENGINEERING

San Jose State University: BACHELOR OF SCIENCE IN CIVIL ENGINEERING

Professional Licenses

State Board of Registration for Professional Engineers & Land Surveyors
Professional Registration No. C 32807

~~Please see the Appendices for the resume showing the Qualifications of the Project Manager.~~ There are to be no external cooperators in this project.

Section A-9 Innovation

The Residential Meter Replacement and Upgrade program incorporates state of the art meter equipment for customer billing with the idea of bringing water conservation tools to the true “grassroots” of the District. Other districts have already implemented meter replacement programs or water meter Radio-Read systems.

However, the ability to enlist each customer as a volunteer in self-starting conservation efforts is innovative in the best sense. The District intends to provide what is technically labeled “Diurnal Demand Curves” to each customer that requests them. The computer chip in each upgraded meter can store enough data to be able to track the water usage for the previous 74 days. The data is available from the meter each time it is cued by the Radio Controller. Whenever there is a question or comment from a customer’s bill, the consumption pattern can be shown to the customer and discussed with him.

The consumption pattern is filed by the computer chip such that the data for the most recent 74 days is always available. Thus, any recent effect of changes by the customer is readily available. For example, a billing cycle may run from May 1st to June 30th. A customer changes his irrigation schedule on June 5th and requests information on how it has affected his water usage. At the end of the billing cycle, the District’s Customer service department can provide the customer with a graphical record of his 60 days of water use in the billing cycle – the 35 days prior to the schedule change and the 25 days after the schedule change. The customer can see the results of his conservation effort graphically on each watering day. A further report of the following billing cycle can also be sent to the customer.

The intent of the Upgrade program is to give concerned customers access to information, information useful for improving their water usage habits.

Section A-10 Agency Authority

1. The General Manager of the District has been directed to implement measures to reduce Unaccounted Water for the District by the Water Committee of the District Board of Directors. Implementation of this program and entering into a funding agreement with the DWR for this purpose would fall within the direction given to the general manager.

   On December 9, 2002, a resolution to authorize entering this specific agreement with the Department of Water Resources will be presented to the Water Committee for recommendation to the full Board of Directors at the next Board meeting on December 17, 2002.

2. Dublin San Ramon Services District is a Community Services District formed and enabled under the Provisions of the State of California Government Code 61000.

3. Dublin San Ramon Services District is not required to hold an election before entering into a funding agreement with the State of California.

4. The funding agreement between Dublin San Ramon Services District and the State of California will not be subject to review or approval by any other government agencies.

5. There is no pending litigation that may impact the ability of Dublin San Ramon Services District to enter into this agreement with the State of California or to complete the proposed project.

Section A-11 Operations and Maintenance

Regular oOperations and general maintenance of the District's water distribution network is done by District-eEmployed Water Operators in the Field Services Department. The cost of these employees is shown below under "Personnel." Contractors selected by the Field Services Manager do larger-s Scale repair projects. The cost of these repairs is shown below under "Repairs & Maintenance: Water Infrastructure."

The source of revenue for these expenses is the Water Enterprise Fund of the District. This Fund is provided its revenue from the Water Consumption Fees paid by District customers in bi-monthly billing and by Connection Fees paid for new connections. The Water Enterprise Fund revenue from all sources for fiscal year 2003 is $9,169,464.

Operations and Maintenance Expense Summary
Field Services Department
Water Enterprise Fund

Object	Estimated FY 2003 Expenses
Personnel	$580,279
Chemicals	$20,000
Operating Supplies	$25,000
Utilities - Water	$275,000
Gasoline, Oil & Fuel	$8,000
Repairs & Maintenance: Water Infrastructure	$380,000
Repairs & Maintenance: Water Equipment	$20,000
Small Tools & Equipment: Water	$25,000
Small Tools & Equipment: Portable Signs	$800
Contracts: Professional Services: Water	$10,000
Maintenance Contracts: Water	$5,000
Other Contract Services: Water	$15,000
Total	**$1,364,079**

Part B—Engineering and Hydrologic Feasibility

Section B-1 Certification Statement

Sample engineering feasibility certification statement

I, _____David K Behrens~~Bert Michalczyk~~_____, a California registered civil engineer, have reviewed the information presented in support of this application. Based on this information, and any other knowledge I have regarding the proposed project, I find that it can be designed, constructed, and operated to accomplish the purpose for which it is planned. There is a sufficient water supply for the project. The information I have reviewed to document this statement is included within this application and the files of Dublin San Ramon Services District.~~*(provide list, e.g., feasibility studies, engineering design studies, water rights permits, etc.)*~~

_____

(Original signature and stamp with expiration date)

Section B-2 Project Reports and Previous Studies

Dublin San Ramon Services District has been actively seeking to reduce its Unaccounted Water to a more acceptable level for several years. In 2001 the District commissioned a water audit[1] that disclosed a significant loss of water from the District's supply to the customers. The water audit found that only 84.2% of the source water for year 2000 was recorded in the billing records of the District. Nearly 16% was Unaccounted Water. In previous years, this percentage was as high as 18%.

The breakdown of the water losses from the Water Audit is:

Source water	100.0%
Accounted for water	84.2%
Meter inaccuracies due to age	5.3%
Inaccurate meter factors and registries	0.8%
Authorized non-account water	1.1%
Unauthorized diversion at construction	1.1%
Unknown system leaks	7.6%

Residential Meter Inaccuracies

A literature search and verbal communication with nearby public water providers showed the District that meter accuracies decrease with age [2]. We found that an average factor for the decrease is at least 0.67% loss in accuracy per year. A District study of metering accuracy over a cross section of its own meters in March 2001[3] confirmed the drop off in accuracy with time.

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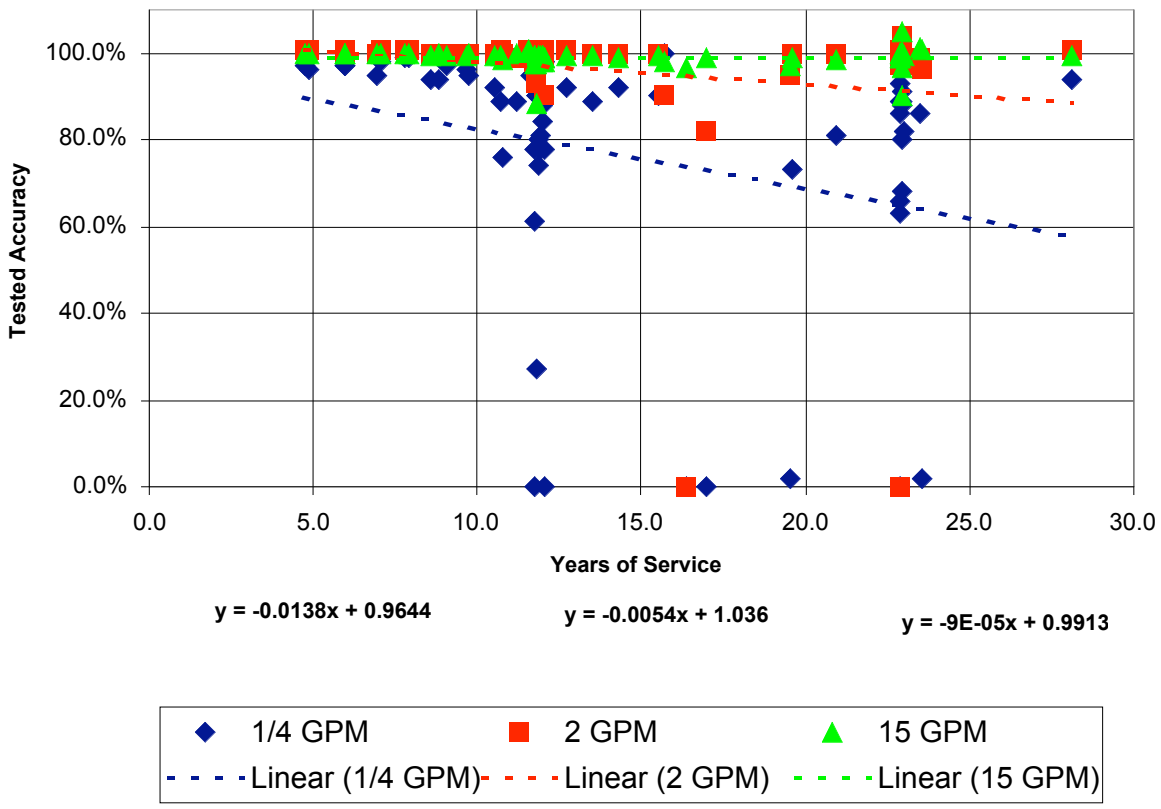
[1] Brown and Caldwell, *System Water Audit for Dublin San Ramon Services District,* Oct. 2001, 11-20836-001/6

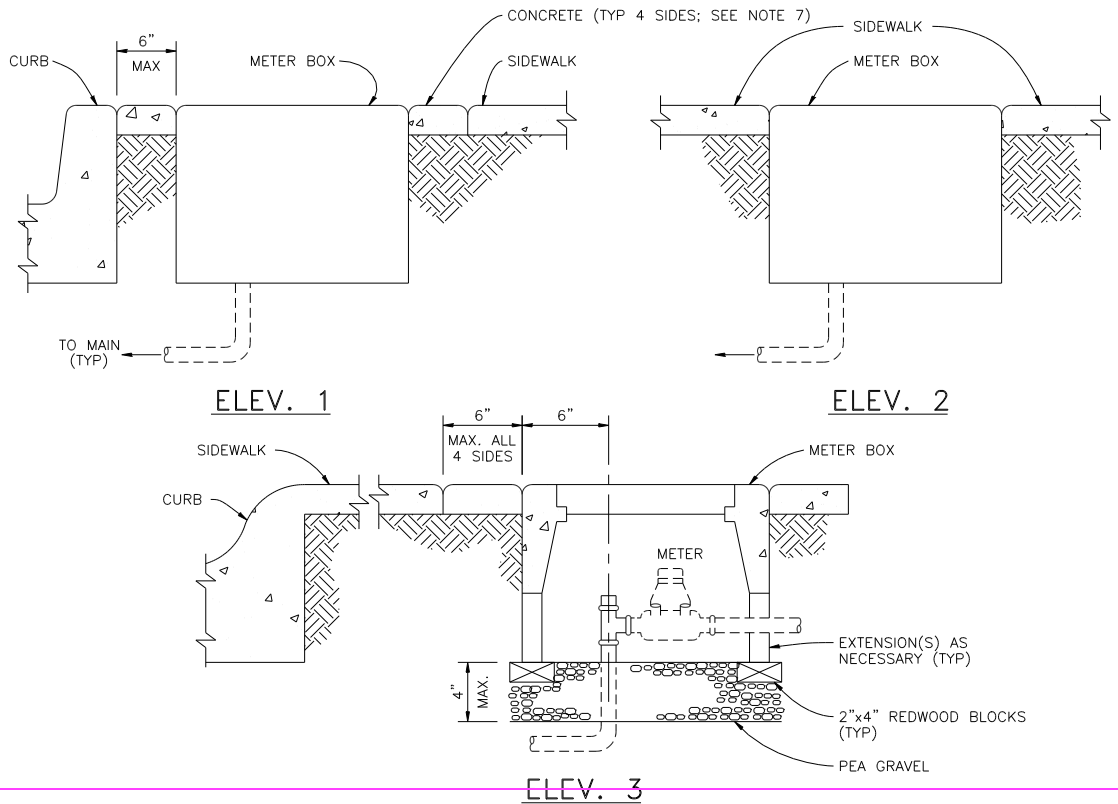
[2] for example, see Yee, M. D., *Economic Analysis for Replacing Residential Meters,* AWWA Journal, Volume 91, Issue 7

[3] M. Wolf*, Testing of 60 Residential Meters*, March 2001

Figure 2



The District has 2,900 residential water meters over 15 years old, and an additional 887 meters between 10 and 15 years old, representing more than 41% of the District's Single Family accounts.



PREFERRED INSTALLATION

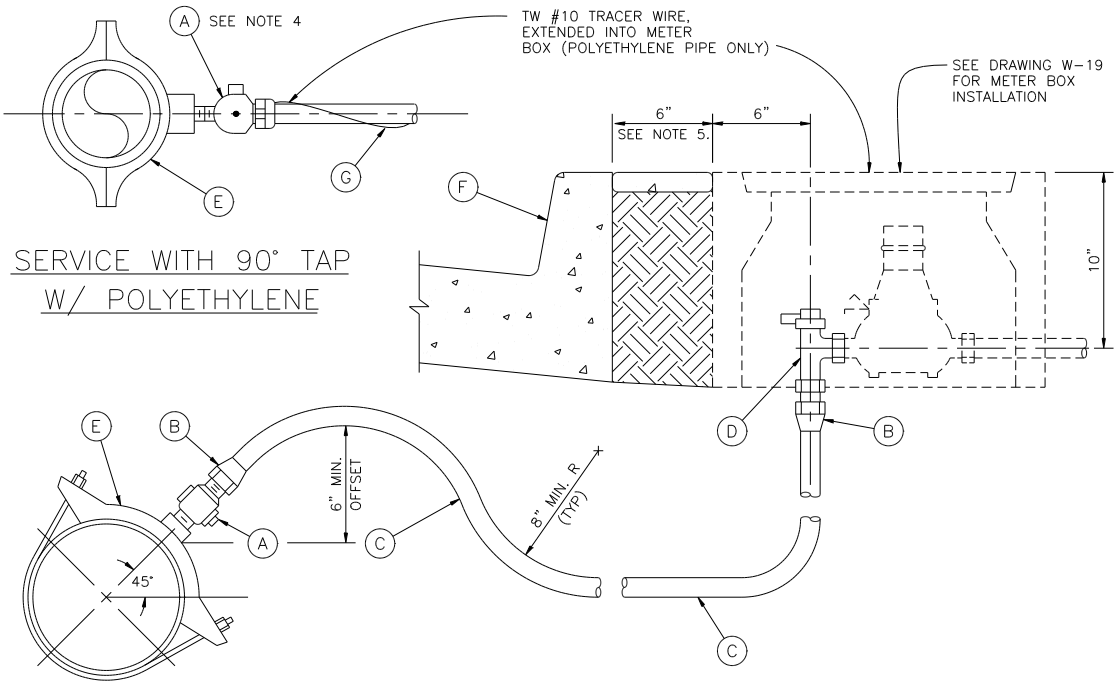
METER BOX SCHEDULE			
METER	CHRISTY MODEL NO.	INSIDE DIMENSION	
		WIDTH	LENGTH
5/8"	B-9	10 5/8"	17 1/4"
3/4" – 1"	B-16	12"	22 1/4"
1 1/2" – 2"	B-36	17 1/4"	30"
3"	B-40	25"	36 3/8"

NOTES:

1. ALL METER BOXES MUST BE SET TRUE, PERPENDICULAR TO STREET, AND FLUSH WITH SIDEWALK.
2. SPACE BETWEEN BOXES IN MULTIPLE METER INSTALLATIONS SHALL BE 2".
3. DO NOT SET METER BOXES ON PRIVATE PROPERTY.
4. LID TO BE ONE PIECE, MARKED WATER, AND TOUCH-READ READY.
5. IN SLOPED AREA METER BOX MAY REQUIRE REDWOOD RETAINING BOARDS.
6. UNLESS A METER BOX IS IN A SIDEWALK OR TRAFFIC AREA, THE METER BOX SHALL BE CHRISTY FIBERLYTE BOX WITH FIBERLYTE LIDS, OR APPROVED EQUAL. METER BOXES IN TRAFFIC AREAS SHALL BE CHRISTY CONCRETE METER BOX OR APPROVED EQUAL.
7. METER BOXES FOR COMMERCIAL/INDUSTRIAL BUILDINGS, OR BUILDINGS WHICH REQUIRE BACKFLOW PREVENTION DEVICES, SHALL HAVE A CONCRETE COLLAR AROUND THE METER BOX.
8. RECYCLED WATER METER BOX INSTALLATIONS SHALL BE IDENTIFIED AS RECYCLED WATER FACILITIES AS PER SPECIFICATION SECTION IV-B1-2.06.

REV. 08/01

Dublin San Ramon Services District	DATE MAY 1987
METER BOX INSTALLATIONS 5/8 INCH TO 3 INCH	DESIGNED SAD
APPROVED _____ DISTRICT ENGINEER: DAVID A. REQUA, RCE 24013	DRAWING W-19



SERVICE WITH 90° TAP W/ POLYETHYLENE

SERVICE WITH COPPER

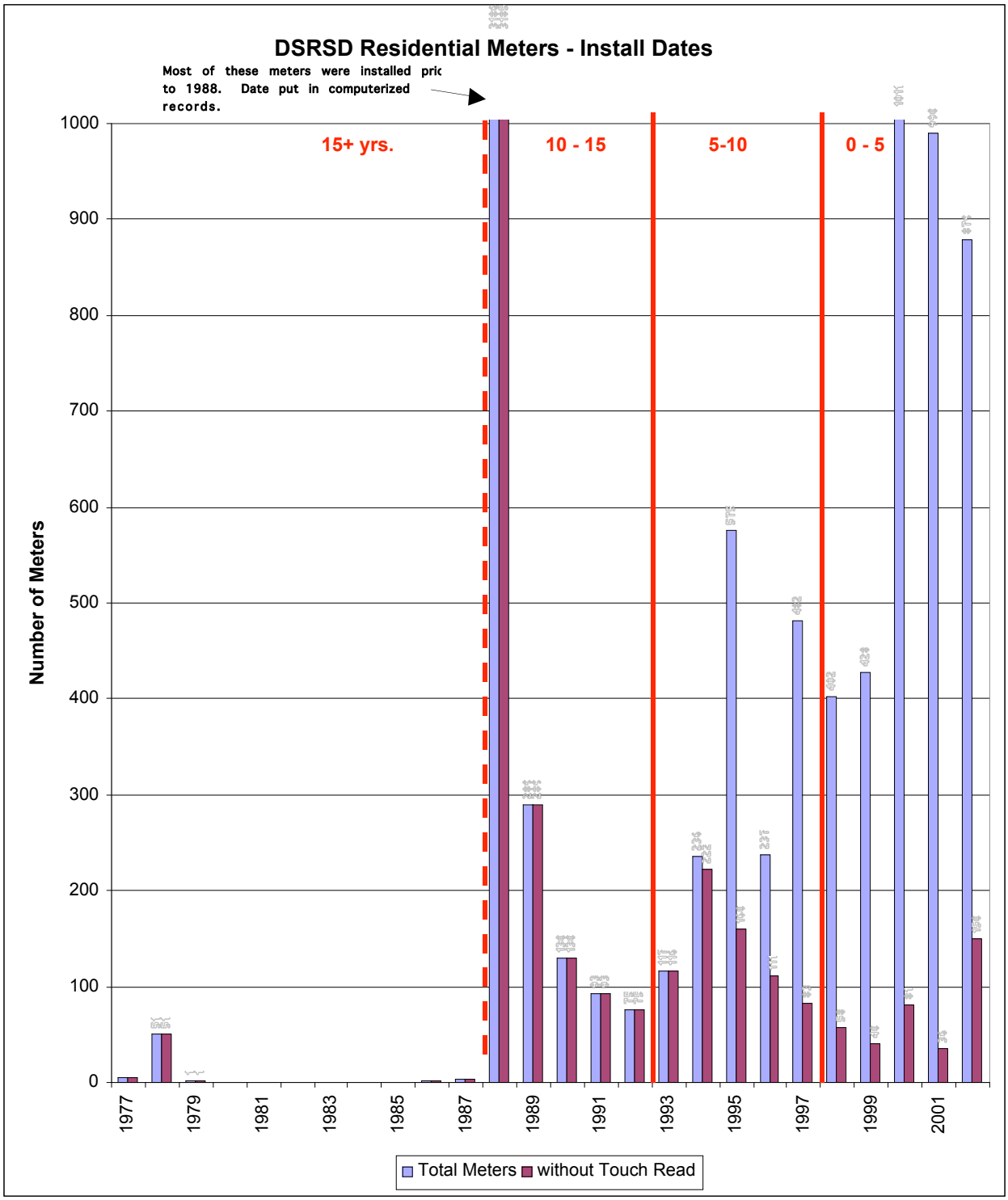
ITEM	DESCRIPTION
A	CORPORATION STOP (FORD F1000 OR EQUAL)
B	FLARE FITTING OR COMPRESSION JOINT
C	TYPE K COPPER TUBING
D	ANGLE CURB STOP W/WING LOCK – BRONZE (FORD KV43-332W)
E	SERVICE SADDLE – BRONZE (ROCKWELL 323, MUELLER 16100, OR APPROVED EQUAL)
F	FACE OF CURB MARKED "W"
G	POLYETHYLENE TUBING W/TRACER WIRE

NOTES:

1. MINIMUM COVER FOR THE SERVICE LINE SHALL BE 36 INCHES.
2. MINIMUM BENDING RADIUS FOR COPPER TUBING SHALL BE 8 INCHES.
3. SERVICE LINE SHALL REST ON UNDISTURBED EARTH.
4. STAINLESS STEEL INSERT STIFFENERS SHALL BE USED AT CORP. AND ANGLE STOPS IN POLYETHYLENE SERVICE LINES WHEN RECOMMENDED BY THE FITTING MANUFACTURER.
5. METER BOXES FOR COMMERCIAL/INDUSTRIAL BUILDINGS, OR BUILDINGS WHICH REQUIRE BACKFLOW PREVENTION DEVICES, SHALL HAVE A CONCRETE COLAR AROUND THE METER BOX.

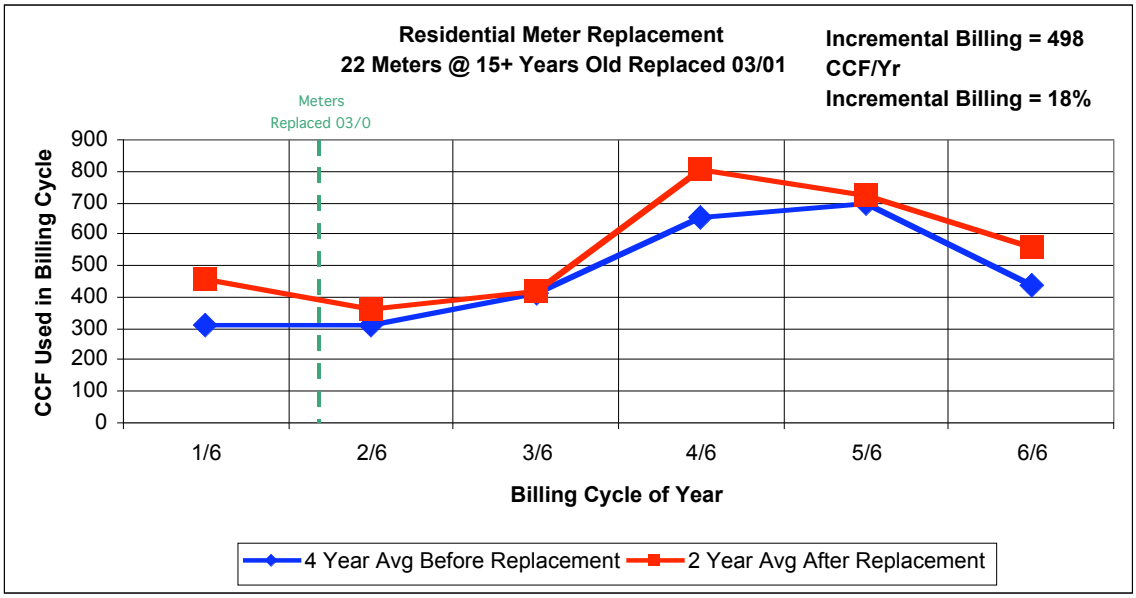
REV. 01/02

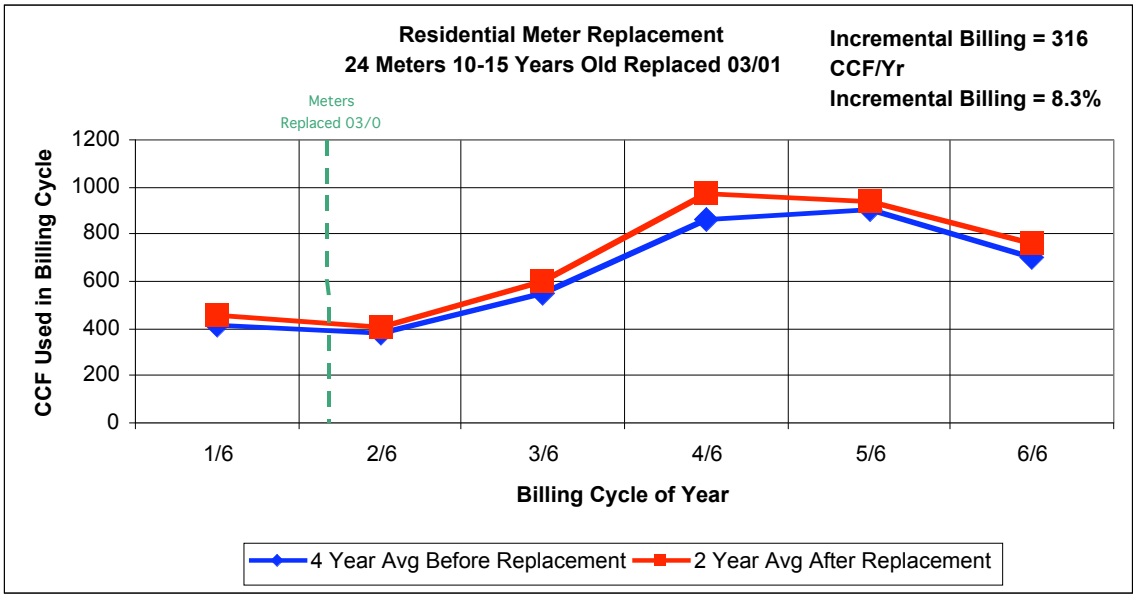
Dublin San Ramon Services District	DATE DEC 1982
1" SERVICE INSTALLATION	DESIGNED SRH
APPROVED _____ DISTRICT ENGINEER: DAVID A. REQUA, RCE 24013	DRAWING W-7



Analysis of customer billing of 60 DSRSD meters replaced in March 2001 showed that meters of 15 or more years of service under-record an average of

18% of the total throughput and meters of 10-15 years of service under-record an average of 8.3% of total throughput.





DSRSD sells 42% of it's total potable water sales through our single-family residential accounts. With over 41% of our residential meters 10 years or longer in service, Unaccounted Water through these accounts represents an important source of possible revenue to the District. To recover this unbilled revenue the District is planning a Residential Meter Replacement Project which will replace all

the residential meters 10 years or older in the next 12 months with new meters of the same size. Thereafter, a regular replacement program will change out the meters as each one reaches 10 years of service.

The proposed grant would allow the District to accelerate this project. The grant would also permit the District to install the Radio-Read system that would include the datalogger function to record consumption on an hourly basis. This data would be made available to the customer on request. The data would enable the concerned customer to take action “on his side” of the meter to reduce water consumption.

Section B-3 Preliminary Project Plans and Specifications

This project will replace meters currently existing in typical District installations. In this District, Residential Meter Replacement when done on a routine basis is performed by meter Utility aides or water operators, and does not require drawings or specifications. The metering equipment of the project and the location of the meters currently existing in the meter boxes are already specified in Dublin San Ramon Services District Standard Procedures, Specifications and Drawings. The pertinent sections and drawings appear below:

MATERIAL OF CONSTRUCTION: Section II-B1-2.12. Meter Boxes

Meter boxes shall be provided for all service meters and shall be installed as indicated on Drawing W-19. All meter box lids shall be fiberglass and touch-read ready.

INSTALLATION: Section II-B2-9. Water Service Connections

Service connections shall be installed in accordance with Drawing W-7. The District will install the water meters after all fees have been paid and occupancy requirements have been met. Meter boxes, angle meter stops and backflow prevention devices shall be provided and installed by the Applicant and will be properly located prior to meter installation and service connection.

See Drawing W-19 at the end of this section.

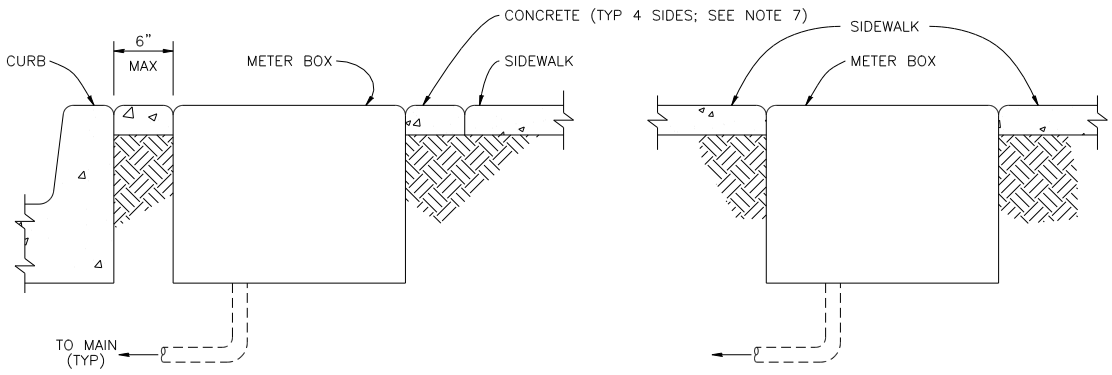
See Drawing W-7 at the end of this section.

For the Upgrade Project, all 3,841 meters will be replaced. Required equipment on each meter installation will include:

A 5/8" or _" positive-displacement type meter, which meets all applicable standards of the AWWA for residential meter use, will be used.

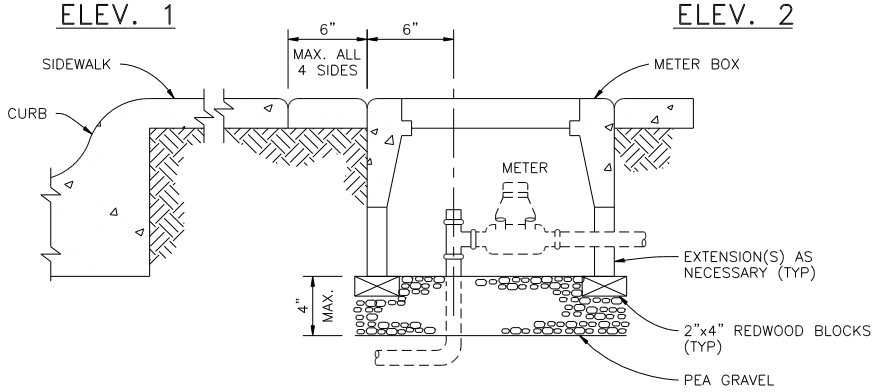
Each meter must include an encoded register-type electronic reading capability.

Each installation will include an electronic Meter Interface Unit that has the ability to electronically query the register of the meter at periodic intervals of one hour or less and retain the returned meter reading in electronic memory. The MIU will have the ability to store the readings as a water usage profile over the billing cycle. The MIU will then have the ability to download the usage profile and the final total reading to the meter reading computer through existing and currently licensable Radio Reading technology.



ELEV. 1

ELEV. 2



ELEV. 3

PREFERRED INSTALLATION

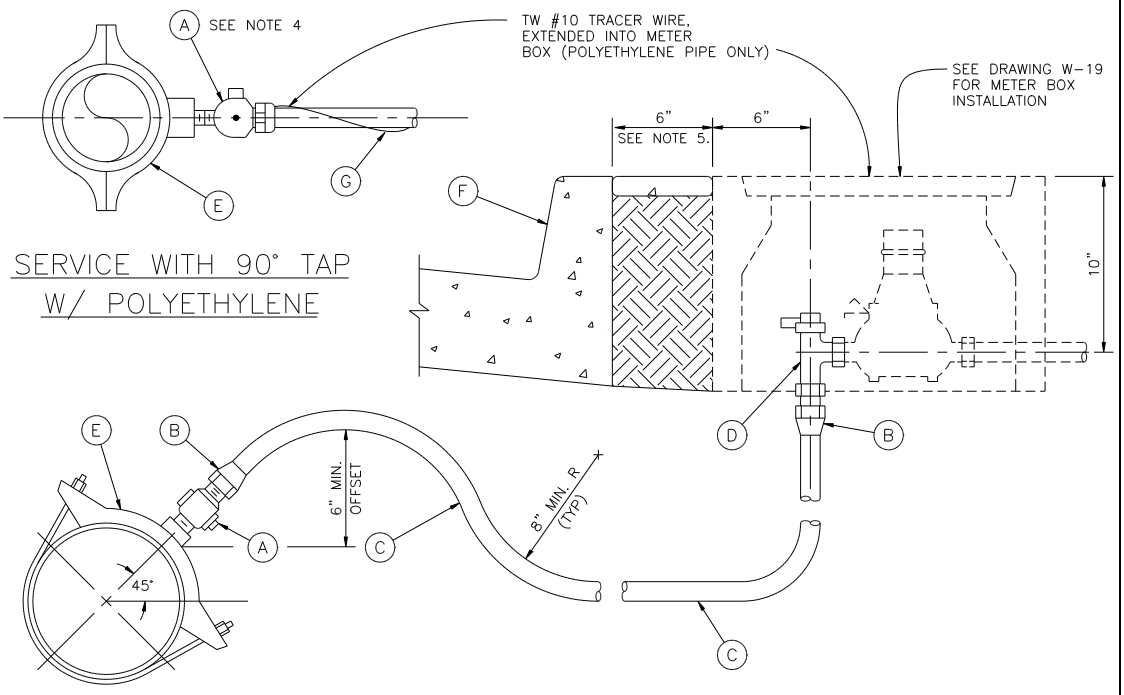
METER BOX SCHEDULE			
METER	CHRISTY MODEL NO.	INSIDE DIMENSION	
		WIDTH	LENGTH
5/8"	B-9	10 5/8"	17 1/4"
3/4" – 1"	B-16	12"	22 1/4"
1 1/2" – 2"	B-36	17 1/4"	30"
3"	B-40	25"	36 3/8"

NOTES:

1. ALL METER BOXES MUST BE SET TRUE, PERPENDICULAR TO STREET, AND FLUSH WITH SIDEWALK.
2. SPACE BETWEEN BOXES IN MULTIPLE METER INSTALLATIONS SHALL BE 2".
3. DO NOT SET METER BOXES ON PRIVATE PROPERTY.
4. LID TO BE ONE PIECE, MARKED WATER, AND TOUCH-READ READY.
5. IN SLOPED AREA METER BOX MAY REQUIRE REDWOOD RETAINING BOARDS.
6. UNLESS A METER BOX IS IN A SIDEWALK OR TRAFFIC AREA, THE METER BOX SHALL BE CHRISTY FIBERLYTE BOX WITH FIBERLYTE LIDS, OR APPROVED EQUAL. METER BOXES IN TRAFFIC AREAS SHALL BE CHRISTY CONCRETE METER BOX OR APPROVED EQUAL.
7. METER BOXES FOR COMMERCIAL/INDUSTRIAL BUILDINGS, OR BUILDINGS WHICH REQUIRE BACKFLOW PREVENTION DEVICES, SHALL HAVE A CONCRETE COLLAR AROUND THE METER BOX.
8. RECYCLED WATER METER BOX INSTALLATIONS SHALL BE IDENTIFIED AS RECYCLED WATER FACILITIES AS PER SPECIFICATION SECTION IV-B1-2.06.

REV. 08/01

Dublin San Ramon Services District	DATE MAY 1987
METER BOX INSTALLATIONS 5/8 INCH TO 3 INCH	DESIGNED SAD
APPROVED _____ DISTRICT ENGINEER: DAVID A. REQUA, RCE 24013	DRAWING W-19



SERVICE WITH 90° TAP W/ POLYETHYLENE

SERVICE WITH COPPER

ITEM	DESCRIPTION
A	CORPORATION STOP (FORD F1000 OR EQUAL)
B	FLARE FITTING OR COMPRESSION JOINT
C	TYPE K COPPER TUBING
D	ANGLE CURB STOP W/WING LOCK – BRONZE (FORD KV43-332W)
E	SERVICE SADDLE – BRONZE (ROCKWELL 323, MUELLER 16100, OR APPROVED EQUAL)
F	FACE OF CURB MARKED "W"
G	POLYETHYLENE TUBING W/TRACER WIRE

NOTES:

1. MINIMUM COVER FOR THE SERVICE LINE SHALL BE 36 INCHES.
2. MINIMUM BENDING RADIUS FOR COPPER TUBING SHALL BE 8 INCHES.
3. SERVICE LINE SHALL REST ON UNDISTURBED EARTH.
4. STAINLESS STEEL INSERT STIFFENERS SHALL BE USED AT CORP. AND ANGLE STOPS IN POLYETHYLENE SERVICE LINES WHEN RECOMMENDED BY THE FITTING MANUFACTURER.
5. METER BOXES FOR COMMERCIAL/INDUSTRIAL BUILDINGS, OR BUILDINGS WHICH REQUIRE BACKFLOW PREVENTION DEVICES, SHALL HAVE A CONCRETE COLAR AROUND THE METER BOX.

REV. 01/02

Dublin San Ramon Services District	DATE DEC 1982
1" SERVICE INSTALLATION	DESIGNED SRH
APPROVED _____ DISTRICT ENGINEER: DAVID A. REQUA, RCE 24013	DRAWING W-7

Section B-4 Construction Inspection Plan

PRE-REPLACEMENT INSPECTION: In the time period before the awarding of the bid, the current DSRSD meter utility aides will be reading each of the meters. To do this, the person must remove the meter box lid and look at the meter to record the meter reading. During this procedure, the person will be instructed to look for and record anything in the meter box out of the ordinary that would require correction during meter replacement or the addition of the Radio- Read equipment.

INSPECTION DURING METER REPLACEMENT: The small-scale nature and short time frame of the individual installations will dictate that no inspections will occur during any specific meter replacement.

POST-REPLACEMENT INSPECTION: The contractor will be required to inspect the installation and electronic reading ability of each meter installation before the replacement program is completed. The contractor will prepare a list of meter installations and their condition as they are finished. District construction inspectors will spot check approximately 2% of the completed installations to enforce District standards.

In addition, the District engineering staff and customer service staff will periodically use the Radio-Read system to determine the condition and reading of the finished meter installations as the program progresses. The contractor will correct any defects in the system.

Section C-1 California Environmental Quality Act and National Environmental Policy Act

This program would be categorically exempt from CEQA provisions as noted below:

Article 19 Categorical Exemptions, Section 15301 Existing Facilities

"Class I consists of the operation, repair, maintenance or minor alteration of existing public or private structures, facilities, mechanical equipment or topographical features involving negligible or no expansion of use beyond that previously existing...The key consideration is whether the project involves negligible or no expansion of an existing use, including, but not limited to... (b) Existing facilities of both investor and publicly-owned utilities used to provide electric power, natural gas, sewage, or other public utility services."

Section C-2 Permits, Easements, Licenses, Acquisitions and Certifications

Licensing of the Radio-Read equipment may or may not be required under the FCC Code, Part 15 depending on the system selected by the public bid process. If the system requires licensing, the District will either apply for the appropriate FCC license or will utilize~~already holds an appropriate~~ the ~~a~~FCC license it now holds in order to operate its personal radio communication equipment.

No other licenses will be required.

Section C-3 Local Land Use Plans

This Residential Meter Replacement Program is consistent with the objectives of the Dublin San Ramon Services District Water Master Plan 2000. By providing for more accurate data on water demand and by enhancing the conservation efforts of District customers, the Program will help conserve the District's and the State of California's potable water resources.

Section C-4 Applicable Legal Requirements

Replacement of District water meters is within the bounds of regular District operations and complies with State and District regulations.

The bidding and bid award for the program will be done under regular District policy, which meets all state regulations governing the bidding and awarding of public entity contracts.

Section D-1 Need for the Project

The need for this project is found on two levels. The first level deals with the operations of the District. The District is committed to the principal of providing its services on an equitable level. The District is committed to accurately measuring the consumption of the water provided to our customers and charging appropriately. In the past years, losses of water revenue have been as high as $800,000 per year. Adequate measurement of the water consumption with new meters will help eliminate those losses. Engineering staff estimates the increased water usage recorded amounts to between 20 and 25% of the total water revenue losses. If the District does not accurately measure the water consumption and charge the appropriate rates, other services of the District would have to see rate increases; or generic, across-the-board rate increases would be needed to replace the revenue losses. In either of those two undesirable scenarios, the District would be distancing itself from the principal of charging for its services on an equitable basis.

The second level of need for the project is met by the upgraded status of the meters sought in this Grant Application. The upgraded equipment will provide the individual single-family customer the information he or she needs to make informed choices about conservation measures. This aspect of the need of the project can bring about a real reduction in the overall water demand. A reduction in the water demand by the customers in the District will allow the transfer of that water to other important uses in the region served by the CALFED organization.

In the long term, the District believes that empowering its customers and entrusting them with the data of their own water use will bring a new interest in better management of their water. For example, we expect that the information could be used by intermediate school students for science projects on water conservation in their home. We expect that the information provided our customers would spark additional interest in the xeriscape and low-water requirement gardening demonstration project at the District Office. Long term forecasts on the effects of providing our customers accurate data about their water habits are difficult to make; but the effects while now unclear are certainly positive.

Section D-2 Outreach, Community Involvement, Support, Opposition

Meter Replacement Communications Plan

In the summer of 2002, 125 commercial turbine meters were replaced with single jet Metron meters. If no one was present at the time of the installation, letters(included below) explaining about the meter replacement effort were hung in clear plastic bags on the doorknobs of the commercial establishments. However, if the proprietor was present, the meter installer would explain the situation and answer any questions the proprietor might have. The meter installers met with no opposition. Each commercial owner the installers met with understood the need to accurately measure the water. A few were upset that it might mean an increase in their water bill, but they understood.

To install the new residential water meters, we will use a similar approach: a letter to the residents(included below), explaining what we are doing, why we are doing it and how to get in touch with us for more information. The meter installer will hang the letter on the customer's doorknob in clear plastic bag. If the resident is available, the meter installer will explain the situation and answer any questions they might have at that time.

Our customer service team is trained to respond to additional inquiries.

In addition, we will post information on our web site explaining how the new meters work. There will be information on how customers can read their meter to understand their water usage so they can better conserve water. There will be information about average water usage rates so customers can compare and contrast their rates with the average. There will be information about how to detect leaks so the individual can join us in our attempt to eliminate lost water. There will be information about water savings per month. And a special graphic of a virtual lake that fills with the water our customers conserve (to goal being to fill the lake complete for all to enjoy).

Replacing meters that are more than ten years old with improved meters that will help customers track their own water use and enable them to conserve water better than in the past meshes well with our overall Water Master Plan: the goal is to consume six million gallons per year less due to water conservation.

June, 2002

Dear Commercial Customer:

Your business has a new water meter today!

As stewards of one of our precious natural resources, we are always looking for ways to prevent leaks and more accurately measure water use. One step along the path of continual improvement is to periodically inspect and maintain our equipment so it meets the standards set by the American Water Works Association (AWWA). AWWA recommends replacing commercial and residential water meters every ten years. At this time, Dublin commercial water meters are seven years old, approaching the suggested replacement standard.

During the next year, the District will replace all 660 commercial meters in Dublin with new meters that more accurately measure the water use. Today your business received its new water meter.

The commercial meters with connections that range in size from two to eight inches are turbine meters. These will be replaced with single jet meters. The new jet meters operate like a wheel on a paddleboat and measure water flow more accurately than the turbine meters. In fact, these new meters can read water flow that is one-fifth to one-eighth of the water flow that the turbine meter can read. In addition, the single jet meters require no annual calibration, thereby saving the District labor charges. Smaller commercial meters (i.e., 1-1.5-inch connections) are being replaced with similar meters (positive displacement meters) that are very accurate at measuring low flow rates.

Stop Water Poachers!

At construction sites, honest crews attach portable water meters to the fire hydrants before accessing the water supply. On a regular basis, the portable water meter is read and the construction company is billed for their use of the water. 'Dishonorable' construction crews have been known to pull their truck up to an unused hydrant and load their tank with District water. Unauthorized use of District water is considered theft.

To thwart water poachers, the District has a program that monitors and recovers illegal use of District water. If you believe you are witnessing the illegal use of the District's water, please call our Engineering Department at (925) 551-7230 ext. 107. Please note the location of the fire hydrant, the vehicle's license number, and the date and time of the incident. Reporting such instances helps us protect this precious resource.

For More Information

If you would like more information about your water service, you may access our website at www.DSRSD.com. We are also available to answer your questions by phone at (925) 828-8524 or by email at customerservice@DSRSD.com.

Dear Residential Customer:

Your home has a new water meter today!

As stewards of one of our precious natural resources, we are always looking for ways to prevent leaks and more accurately measure water use. One step along the path of continual improvement is to periodically inspect and maintain our equipment so it meets the standards set by the American Water Works Association (AWWA). AWWA recommends replacing commercial and residential water meters every ten years. At this time, Dublin residential water meters are more than 15 years old!

During the next year, the District will replace all 4,200 residential meters in Dublin with new meters that more accurately measure the water use. Today your home received a new water meter.

Stop Water Poachers!

At construction sites, honest crews attach portable water meters to the fire hydrants before accessing the water supply. On a regular basis, the portable water meter is read and the construction company is billed for their use of the water. 'Dishonorable' construction crews have been known to pull their truck up to an unused hydrant and load their tank with District water. Unauthorized use of District water is considered theft.

To thwart water poachers, the District has a program that monitors and recovers illegal use of District water. If you believe you are witnessing the illegal use of the District's water, please call our Engineering Department at (925) 551-7230 ext. 107. Please note the location of the fire hydrant, the vehicle's license number, and the date and time of the incident. Reporting such instances helps us protect this precious resource.

For More Information

If you would like more information about your water service, you may access our website at www.DSRSD.com. We are also available to answer your questions by phone at (925) 828-8524 or by email at customerservice@DSRSD.com.

Section E-1 Water Use Efficiency Improvements

The District intends to improve its own Water Use Efficiency by achieving a better understanding of where the water supply of the District is used. Reducing the Unaccounted Water of the District will, by definition, make the District more efficient in water use. The District can move from “Where did all our water go?” to questions like, “How much water do we need to keep in Reservoir 200A to maintain an adequate supply for Pressure Zone 2?” By learning where all the water goes, we can plan more efficient utilization of the resource.

In addition, counting all the water that flows through a meter instead of only a part of it increases the value put on the beneficial use of the water by a customer. The same water is used in each case, but a higher value is transferred between the customer and the District when the bill is paid.

Finally, with the upgrade in the Residential Meter Replacement Program, the District intends to provide all the beneficial uses of water throughout the District, in all the community parks, pools and schools, in all the local restaurants and business, and in all the individual gardens and showers; but at a net conservation of 6 million gallons a year. The same total beneficial uses with a reduction of demand of 6 million gallons a year is a significant improvement over the District’s current water use efficiency.

Section E-2 Other Project Benefits

Management of the water resource in this District includes conferring with people from other Districts that face similar problems and copying or adapting the solutions discussed. The District already shares data on the results of our efforts to reduce unaccounted water with other districts and intends to share the data on the impact of the meter upgrade project. In our opinion, a definite but hard to quantify benefit will be the indirect education of nearby districts on how well dataloggers help the customers conserve our water resource.

Section F-1 Net Water Savings

This project will reduce overall water consumption by the individual customers with the new meters and dataloggers by an estimated 6 million gallons per year. Since the water will be saved by the individual conservation efforts of the affected customers, a significant part of the water savings will come from improvements made to the irrigation patterns of the customers. That portion of the water savings will result in from reducing losses through evaporation.

Section F-2 Project Budget and Budget Justification

Estimated Budget for Residential Meter Upgrade Program

Item		Estimated Expenditures									
	Land Purchase/ Easement	Planning, Design, Engineering	Materials and Installation	Structures	Equipment Purchases/ Rentals	Environmental Mitigation/ Enhancement	Construction, Administration, Overhead	Project Legal/ License Fees	Other	Contingency Costs @ 15%	Total
Preparation of Specifications		$15,000								$2,250	$17,250
Contractor Mobilization			$5,000							$750	$5,750
3841 PD meters @ $65 ea			$250,000							$37,500	$287,500
3841 Meter Interface Units with Water Usage Load Profile feature and AMR transmitter@ $135 ea.			$519,000							$77,850	$596,850
Installation of 3841 meters			$110,000							$16,500	$126,500
AMR Radio Read Receiver/Computer			$6,000							$900	$6,900
FCC License								$5,000		$750	$5,750
DSRSD Customer Service to Customers with Meter Dataloggers							$10,000			$1,500	$11,500
Analysis of Incremental Accounted Water - Quarterly Reports 06/04 to 12/05							$5,000			$750	$5,750
Quarterly Reports to DWR on Increased Water Use Efficiency					$5,000		$5,000			$1,500	$11,500
Totals	**$0**	**$15,000**	**$890,000**	**$0**	**$5,000**	**$0**	**$20,000**	**$5,000**	**$0**	**$140,250**	**$1,075,250**

Section F-3 Economic Efficiency

The Economic Efficiency of this project is demonstrated by the Benefit to Cost Ratio of 1.06 calculated using the Tables provided in the Water Use Efficiency Grant Application package. Please see the tables attached below.

The assumptions used in this analysis follow the pattern required in the instructions for the Grant Application.

Period of Analysis: The period of analysis is assumed to be 10 years, the usable life of a residential meters recommended by the AWWA.

Inflation and Escalation: This analysis uses the recommended factor of 0%.

Discount Rate: This analysis uses the recommended factor of 6%.

Dollar Value Base Year: This analysis uses the recommended current year.

Multiple Funded Project: This project is one in which the applicant is requesting that DWR fund only a portion of the project. However, as recommended, total project costs are included in the economic analysis

Project Costs: Included in Tables 1, 2 and 3 as recommended. Project costs come from the project budget information included in a previous section

Avoided Cost of Current Supply Source: In this program, six million gallons per year (18.4 AFA) would be saved through the conservation efforts of DSRSD customers. This water would not be purchased from DSRSD's regular water supplier at the current rate of $548/AF.

Alternate Cost of Future Supply Sources: If this project were not implemented, there would be no alternative source developed by the District. Zero cost was assigned to this factor.

Water Supply Vendibility: In this program, 60 million gallons per year (184.1 AFA) of the water that is now unaccounted in individual, worn out meters would be counted and sold to District customers. This represents revenue to DSRSD. The revenue is calculated for the volume above sold at the current District water rate.

Tables 1 through 5 are shown on the following pages.

APPLICANT: Dublin San Ramon Services District – Residential Meter Upgrade

THE TABLES ARE FORMATTED WITH FORMULAS: FILL IN THE SHADED AREAS ONLY

Table 1: Capital Costs

	Capital Cost Category *(a)*	Cost *(b)*	Contingency Percent *(c)*	Contingency $ *(d)* *(bxc)*	Subtotal *(e)* *(b+d)*
(a)	Land Purchase/Easement	0	15.00%	0	0
(b)	Planning/Design/Engineering	25,000	15.00%	3,750	28,750
(c)	Materials/Installation	890,000	15.00%	133,500	1,023,500
(d)	Structures	0	15.00%	0	0
(e)	Equipment Purchases/Rentals	0	15.00%	0	0
(f)	Environmental Mitigation/Enhancement	0	15.00%	0	0
(g)	Construction/Administration/Overhead	15,000	15.00%	2,250	17,250
(h)	Project Legal/License Fees	5,000	15.00%	750	5,750
(i)	Other	0	1.00%	0	0
(j)	Total (1) (a + ... + i)				1,075,250
(k)	Capital Recovery Factor: Use Table 6				0.1359
(l)	Annual Capital Costs (j x k)				146,126

(1) Costs must match Project Budget prepared in Section F-2.

Table 2: Annual Operations and Maintenance Costs

Administration *(a)*	Operations *(b)*	Maintenance *(c)*	Other *(d)*	Total *(e)*
2,000	2,500	2,000		6,500

Table 3: Total Annual Costs

Annual Capital Costs (1) *(a)*	Annual O&M Costs (2) *(b)*	Total Annual Costs *(c) (a+b)*
146,126	6,500	152,626

(1) From Table 1, line (l)

(2) From Table 2, column ***(e)***

Table 4: Water Supply Benefits

(2002 Dollars)

Net water savings (acre-feet / year) _18.4_____

4a. Avoided Costs of Current Supply Sources

Sources of Supply *(a)*	Cost of Water ($/AF) *(b)*	Annual Displaced Water Supply (AF) *(c)*	Annual Avoided Costs ($) *(d) (b x c)*
Zone 7	548	18.4	10083.2
			0
			0
			0
			0
Total			**10083.2**

4b. Alternative Costs of Future Supply Sources

Future Supply Sources (a)	Total Capital Costs ($) (b)	Capital Recovery Factor (1) (c)	Annual Capital Costs ($) (d) (bxc)	Annual O&M Costs ($) (e)	Total Annual Costs ($) (f) (d+e)
			0		0
			0		0
			0		0
			0		0
			0		0
Total					**0**

(1) Use number from Capital Recovery Factor Table 6

4c. Water Supplier Revenue (Vendibility)

Parties Purchasing Project Supplies (a)	Amount of Water to be Sold (AF) (b)	Selling Price ($/AF) (c)	Expected Frequency of Sales (1) (%) (d)	Expected Selling Price ($/AF) (e) (cxd)	"Option" Fee (2) ($/AF) (f)	Total Selling Price ($/AF) (g) (e+f)	Annual Expected Water Sale Revenue ($) (h) (b x g)
SRSD Customers	184	823	100.00%	823	0	823	151,56
				0		0	
				0		0	
				0		0	
				0		0	
otal							**151,56**

1) During the analysis period, what percentage of years are water sales expected to occur?
For example, if water will only be sold half of the years, enter 50% (0.5).

2) "Option" fees are paid by a contracting agency to a selling agency to maintain the right of the contracting agency to buy water whenever needed. Although the water may not be purchased every year, the fee is usually paid every year.

Table 4d. Total Water Supply Benefits

(a) **Annual Avoided Costs of Current Supply Sources from 4a, column *(d)***	10,083
(b) **Annual Avoided Costs of Alternative Future Supply Sources from 4b, column *(f)***	0
(c) **Annual Expected Water Sale Revenue from 4c, column *(h)***	151,566
(d) **Total Net Annual Water Supply Benefit ($)** (a+b+c)	161,649

Table 5: Benefit/Cost Ratio

Project Benefits ($)(1)	161,649
Project Costs ($)(2)	152,626
Benefit/Cost Ratio	1.06

(1) From Table 4d, row (d): Total Annual Water Supply Benefits

(2) From Table 3. column *(c)*: Total Annual Costs